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Ophiodothella angustissima comb. nov., a new name for *Acerviclypeatus poriformans* and *O. vaccinii*

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Abstract —A common leaf spot disease on *Vaccinium arboreum* in the southeastern United States has been attributed to *Ophiodothella vaccinii*. The leaves are infected in early spring and during the summer abundant acervular conidia are produced. In addition to *O. vaccinii*, two names have been applied to this fungus in the literature, *Septoria angustissima* and *Acerviclypeatus poriformans*. A study was undertaken to determine which name should be applied to this fungus, resulting in our proposing a new combination. On the basis of priority, *O. angustissima* comb. nov. is the correct name for the taxon.

Key words — anamorph, *Ascomycota*, *Phyllachoraceae*, sparkleberry, taxonomy

Introduction

Vaccinium arboreum Marshall (sparkleberry) is a common understory shrub in the southeastern United States. The leaves of this plant are frequently infected by *Ophiodothella vaccinii*, which causes a leafspot commonly known as "fly speck" disease. In her original description of the species, Boyd (1934) described the anamorph as an acervulus, but without assigning it to a particular genus. Hanlin (1990a) published illustrations of the species and based on the unique morphology of the anamorph, he concluded that it could not be accommodated in any current anamorph. He subsequently assigned it to the new genus *Acerviclypeatus* as *A. poriformans* (Hanlin 1990b). Barr (1990), however, in her review of pyrenomycetous genera, indicated that *Septoria angustissima* (Peck 1911) is an earlier name for *O. vaccinii*. Consequently, a study was undertaken to determine the correct name for this fungus.

Materials & methods

Type specimens of *A. poriformans*, *O. vaccinii* and *S. angustissima* were examined and compared visually. Because of the sparseness of material in the type of *S. angustissima*,

no mounts were made, especially since the original description matches the later descriptions in Boyd (1934) and Hanlin (1990a), which were confirmed by Barr (1990).

Results

After close examination, it is clear that the three examined type specimens *Acerviclypeatus poriformans*, *Ophiodothella vaccinii,* and *Septoria angustissima* represent the same fungus.

The label on the package containing the holotype specimen of *Septoria angustissima* is shown in Plate 1A. Of significance here is the comment, "On *Maclura pomifera* (Osage orange), leaves." The label on the type packet (Plate 1B) contains the following information, "= *Ophiodothella angustissima* (Pk.) n. comb. [in pencil], Herbarium N. Y. State Museum [printed], TYPE *Septoria angustissima* Peck [in ink] Aberdeen, Miss. on lvs. of Osage orange [in ink] (host is *Vaccinium arboreum*) [in pencil), T.C. Frye, 28 Aug. 1906 [in ink]."

Inside the type packet of *S. angustissima* are three dried leaves of the specimen, two intact and the other with a portion missing (Plate 2A). Also in the packet are two additional leaves and several notes:

(1) A handwritten note in ink (Plate 2B) bears the notation, "on leaves of Osage orange growing wild in river bottoms, Aberdeen, Miss. Coll. T.C. Frye. No. 26. Aug. 28, 1906." Above this is a penciled note, "I'm at a loss to understand why Peck called this a *Septoria*. (HDH)."

(2) A typewritten note (Plate 3A) states, "The host is not *Toxylon* (a loose leaf of *Toxylon*, with its acuminate apex enclosed), but seems to match the smaller leaf enclosed which is *Vaccinium arboreum* March. [sic] (*Batodendron arboreum* Nutt.). Do you agree?" Two leaves are included with this note. *Toxylon* is a synonym of *Maclura*, the genus of Osage orange.

(3) A handwritten 8.5 × 8.5 cm note (Plate 3B) says, "I compared these with mulberry leaves. The upper surfaces are similar but the cuticles below are different. The edges are similar. The fungus is immature. Can you collect again about the 1st of May?" On the reverse side of this note (Plate 4A) are the comments:

> "I share your wonder why this was described as a *Septoria*. The housing is not a typical pycnidium. The raphe-like sheaves beside the globose cells remind one of the conidia of some Entylomata. They may not be reproductive organs.
>
> "The units seem to consist of a carbonous clypeus over an acervulus.
>
> "I have retained the leaf I was working on to seek it among the [unclear] of the heaths" over initials [unclear].

4) A handwritten note (Plate 4B) is: "Conidial stage of *Ophiodothella vaccinii* Boyd M. E. Barr Bigelow May 1963".

NEW YORK STATE MUSEUM TYPE COLLECTION

Septoria angustissima Peck

Holotype

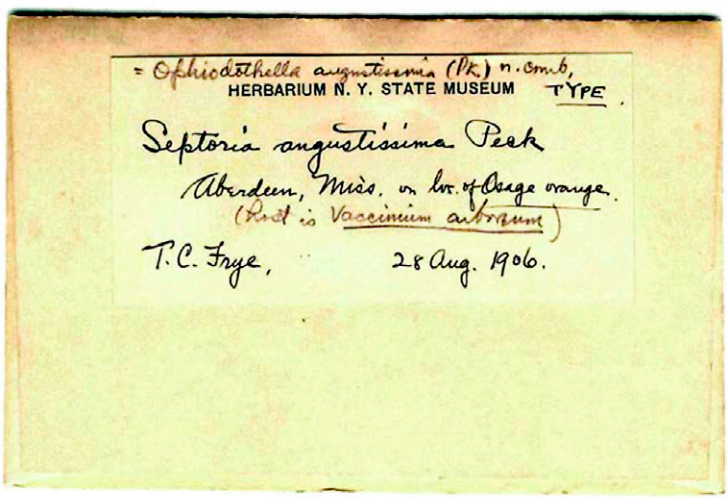
Leg. T.C.Frye (comm. F.D. Kern)

Aberdeen MS USA

On Maclura pomifera (Osage orange), leaves

Type database entry#: 0204

A


= Ophiodothella angustissima (Pk.) n. comb.
HERBARIUM N. Y. STATE MUSEUM TYPE
Septoria angustissima Peck
Aberdeen, Miss. on lvs. of Osage orange.
(Host is Vaccinium arboreum)
T.C. Frye, 28 Aug. 1906.

B

Plate 1. *Septoria angustissima* (holotype collection). A: Label. B: Front of packet.

Discussion

Although the leaves of *Maclura* and *Vaccinium* resemble one another superficially in being broadly elliptical and dark green in color, the leaves of *Maclura* are larger (7.5–13 cm long × 5–7.5 cm wide) and end in an acuminate tip, whereas the leaves of *Vaccinium* are smaller (3–7 cm long × 2–4 cm wide), with an obtuse apex. The plants also differ greatly in size; *Maclura* is a large tree,

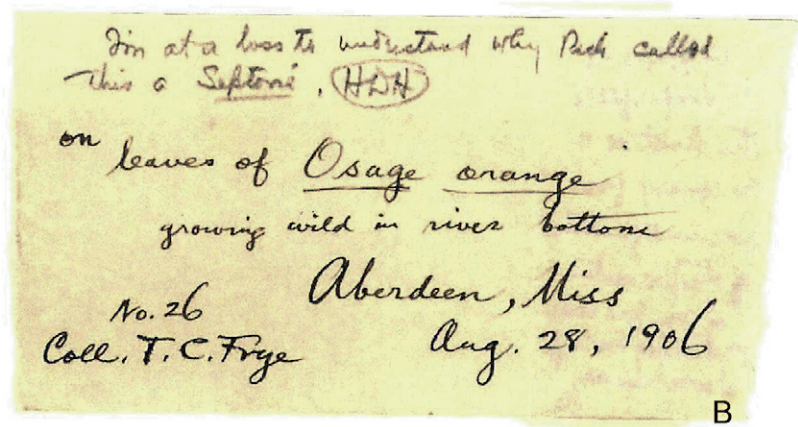


Plate 2. *Septoria angustissima.*
A: Type specimen. B: Note with collection information for the holotype.

whereas *Vaccinium* is a shrub or occasionally a small tree. The leaves of the type specimen are clearly those of *V. arboreum*.

The structure of the conidioma, which Peck termed a perithecium, is an acervulus, whereas in *Septoria* the conidia are formed in a well-defined

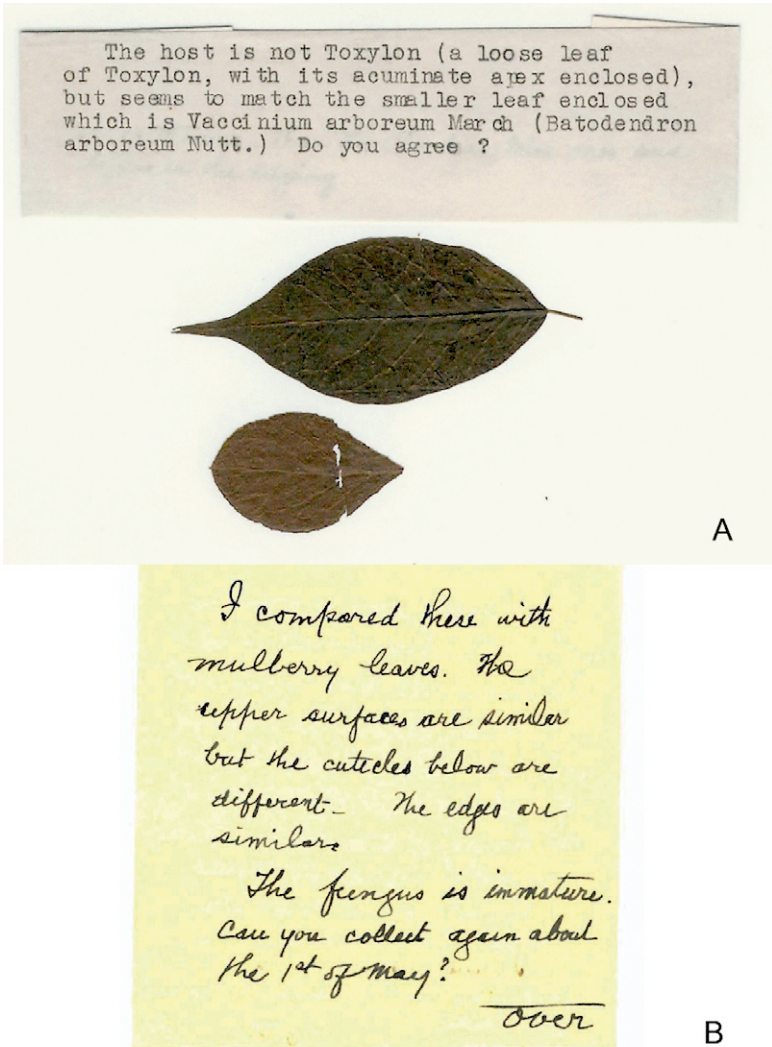
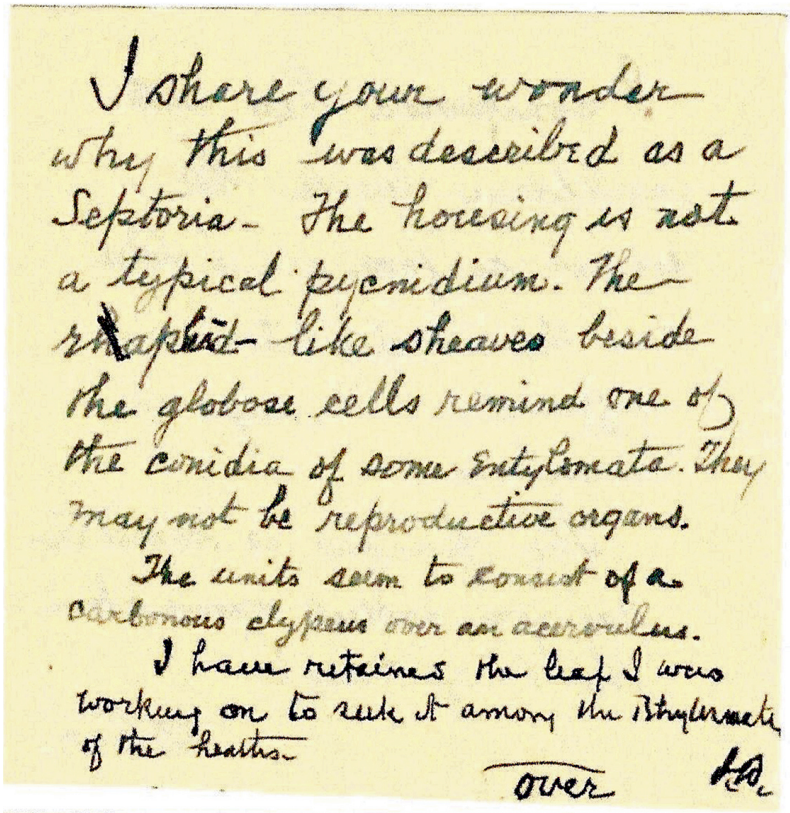

The host is not Toxylon (a loose leaf of Toxylon, with its acuminate apex enclosed), but seems to match the smaller leaf enclosed which is Vaccinium arboreum March (Batodendron arboreum Nutt.) Do you agree ?
A
I compared these with mulberry leaves. The upper surfaces are similar but the cuticles below are different. The edges are similar.
The fungus is immature. Can you collect again about the 1st of May?
over
B

Plate 3. A: Note comparing a leaf of *Maclura* (=*Toxylon*) *pomifera* (upper) with one of *Vaccinium arboreum* (lower). B: Note comparing mulberry leaves (not shown) with the leaves in 3A.

pycnidium (Sutton 1980). Although the conidia in both *O. vaccinii* and *Septoria* are hyaline and filiform, *Septoria* conidia are usually septate, whereas the conidia of *O. vaccinii* are aseptate. Also, conidia in *Septoria* tend to be larger then those in *Ophiodothella*; Sprague (1944) showed that conidia of *Septoria* from grasses


I share your wonder why this was described as a Septoria. The fruiting is not a typical pycnidium. The rhapsid-like sheaves beside the globose cells remind one of the conidia of some Entylomata. They may not be reproductive organs.

The units seem to consist of a carbonous clypeus over an acervulus.

I have retained the leaf I was working on to rule it among the Phyllosticta of the heaths.

over

A

Conidial stage of
Ophiodothella vaccinii Boyd

M. E. Barr Bigelow May, 1963

B

Plate 4. *Septoria angustissima* (holotype collection). A: Note with comments regarding identification of host leaves. B: Annotation by M. E. Barr Bigelow.

varied in size from 22–98 µm long × 1.4–2.6 µm wide, compared with 18–24 × 1 µm in *Ophiodothella*. This is implied by Peck (1911) in his description of the species as, "Remarkable for its very narrow spores." In addition, the *Vaccinium* anamorph has an unusual method of pore formation, as shown in a study of ontogeny of the conidioma (Hanlin 2003). This served as the basis for assigning it to the genus *Acerviclypeatus* (Hanlin 1990b).

The penciled annotation at the top of the type packet, " = *Ophiodothella angustissima* (Pk.) n. comb.," is interesting, as it indicates that the connection of the specimen with *Ophiodothella* was recognized early. When and by whom this annotation was made is unknown, but the name appears to have not been published. In Index Fungorum (CABI 2012), *S. angustissima* is listed as "anamorphic *Mycosphaerella*" but this refers only to the generic anamorph/teleomorph connection between *Septoria* and *Mycosphaerella*. *Ophiodothella vaccinii* also has been mistakenly identified as *Rhytisma vaccinii* (Schwein) Fr. due to the similarity in appearance of the acervuli with the apothecia of certain species of *Rhytisma*, such as *R. punctatum* (Pers.) Fr. *Rhytisma vaccinii* was described on *V. frondosum* from North Carolina.

Prior to the description of the genus *Acerviclypeatus* a search of the literature was made to look for similar fungi reported on *V. arboreum*. Alfieri et al. (1984) reported *Septoria albopunctata* Cooke on *V. arboreum* from Florida, and Farr et al. (1989) list the same species from South Carolina and Texas. The report of *S. angustissima* was overlooked because of the misidentification of the host.

Based on the above results, a new combination is proposed for the fungus causing the leaf spot disease on *Vaccinium arboreum*.

Ophiodothella angustissima (Peck) Hanlin & M.C. González, **comb. nov.** Pl 1–4

MycoBank MB 803907

≡ *Septoria angustissima* Peck, Bull. N. Y. St. Mus. 150: 62. 1911.

= *Ophiodothella vaccinii* Boyd, Mycologia 26: 465. 1934.

= *Acerviclypeatus poriformans* Hanlin, Mycotaxon 37: 381. 1990.

specimens examined, **UNITED STATES. Georgia: Clarke Co.,** Athens, on leaves of *Vaccinium arboreum,* April 1933, Sophie Boyd (GAM 7026 [=M 7091], holotype of *Ophiodothella vaccinii*). **Madison Co.,** on leaves of *Vaccinium arboreum,* 10 September 1989, RT Hanlin (903) (GAM 12745, holotype of *Acerviclypeatus poriformans*); **Mississippi: Monroe Co.,** Aberdeen, on leaves of "Osage orange" [actually *V. arboreum*], 28 August 1906, TC Frye (NYS 0204, holotype of *Septoria angustissima*).

On the basis of the priority of its epithet, *O. angustissima* is the correct name for the taxon.

Acknowledgments

We thank the curators of NYS for loan of the type of *S. angustissima*. The senior author is grateful to the late Margaret Barr for calling his attention to her remarks regarding this fungus. We thank Sabine Huhndorf and Amy Rossman for their helpful reviews of the manuscript.

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